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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/990,131      | 11/21/2001  | Hiroto Takeshita     | 0671.65997          | 2108             |

7590

08/08/2002

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EXAMINER

BERNATZ, KEVIN M

ART UNIT

PAPER NUMBER

1773

DATE MAILED: 08/08/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/990,131

Applicant(s)

TAKESHITA ET AL.

Examiner

Kevin M Bernatz

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) 6-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5, 11 and 12 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2,3. 6) ☐ Other: \_\_\_\_

## **DETAILED ACTION**

### ***Response to Amendment***

1. Preliminary amendments to the specification, filed on June 10, 2002, have been entered in the above-identified application.

### ***Election/Restrictions***

2. Claims 6 – 10 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 5.

### ***Drawings***

3. Figures 1a and 1b should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

### ***Information Disclosure Statement***

4. The information disclosure statements have been considered, but the examiner notes that many of the JPO Abstracts were incorrect (it appears the application number

and not the publication number was used when obtaining the abstracts). The correct abstracts have been included on the Form 892 attached to this office action.

### ***Specification***

5. The lengthy specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

### ***Claim Objections***

6. Claim 4 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

### ***Claim Rejections - 35 USC § 112***

7. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for the height of the non-magnetic layer and height of the magnetic layer on the land being with 5 nm of each other, does not reasonably provide enablement for the height of the land and the groove (i.e. groove depth) being

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within 5 nm of each other. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims. For purposes of evaluating the prior art, the examiner has taken the position that claim 5 reads "... the level difference between the magnetic film on the land and the non-magnetic film at the upper most surface is 5 nm or less" (specification page 18, lines 4 – 5 and page 20, lines 6 – 10).

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. The term "almost identical" in claim 2 is a relative term which renders the claim indefinite. The term "almost identical" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. It is unclear what range is thickness applicants' intend to exclude by the phrase "almost identical". Is some overlap allowed or is applicants intending to only claim within machine tolerances? If the latter, applicants are requested to clarify on the record and either use the language "equal" or "substantially equal", which are more common in the art when referring to relative values. For purposes of evaluating the prior art, the examiner has given the claim its' broadest reasonable interpretation and has allowed for some overlap/extension above the magnetic layer height.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

12. Claims 1 – 3, 11 and 12 are rejected under 35 U.S.C. 102(b) as being anticipated by IDS reference Osami (JP Patent No. 09-044843-A). See provided JPO Abstract Translation and Machine Assisted Translation of the Tokkyo Kokai 09-044843-A.

Regarding claims 1 and 11, the claimed invention reads on Osami as follows:

Osami discloses a magnetic memory medium characterized in comprising a substrate on which groove and land are formed, a magnetic film laminated on said substrate, and a non-magnetic film deposited on said magnetic film on said groove up to the position higher than the land of the substrate (Figure 3; Paragraphs 0045 – 0047; and JPO abstract, wherein protective material 12 is read as applicants' "non-magnetic film").

Claims 11 and 12 are noted to be nominal apparatus claims. Restriction has not been made between the product of claims 1 - 5 and the apparatus of claims 11 and 12 because the apparatus claims recite no significant apparatus elements. If apparatus claims containing significant apparatus elements are added by amendment they may be subject to restriction due to original presentation.

Regarding claims 2 and 12, Osami discloses the height of the protective layer (i.e. "non-magnetic layer") to be "almost identical" to said magnetic film (see Figure 3, wherein the amount of overlap of the protective layer is thinner than the thickness of the magnetic layer).

Regarding claim 3, the polymeric materials disclosed by Osami are deemed to inherently have a lower melting point than the material of the magnetic film (which applicants' admit is known to be *well over 450 °C* on page 12, last paragraph). Specifically, the polymeric materials used for such layers are typically polycarbonates, polyimides, etc., which are deemed to meet applicants' claimed limitation.

13. Claims 1 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by Kashiwagi et al. (U.S. Patent No. 5,846,626).

Regarding claims 1 and 11, the claimed invention reads on Kashiwagi et al. as follows: Kashiwagi et al. disclose a magnetic memory medium characterized in comprising a substrate on which groove and land are formed, a magnetic film laminated on said substrate, and a non-magnetic film deposited on said magnetic film on said groove up to the position higher than the land of the substrate (col. 6, lines 4 – 22; col. 8, lines 35 – 40; and Figure 3, wherein layer 3 is disclosed to be the magnetic storage layer and layer 4 is a non-magnetic ceramic or polymeric film).

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***Claim Rejections - 35 USC § 103***

14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

15. Claims 2, 3, 5 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kashiwagi et al. as applied above, and further in view of IDS reference Yasumichi et al. (JP Patent No. 04-251435-A). See provided JPO and Derwent Abstract Translations of Tokkyo Kokai 04-251435-A.

Regarding claims 2, 5 and 12, Kashiwagi et al. disclose the claimed invention as described above.

Kashiwagi et al. fail to disclose the non-magnetic layer being within 5 nm in height to the magnetic film on the land.

However, Yasumichi et al. teach a land and groove substrate wherein the magnetic material is packed into the groove (i.e. opposite of Kashiwagi et al. and applicants, wherein the magnetic material is the continuous layer). While the structure of the magnetic/non-magnetic layers are inverted, applicants are reminded that the suggestion to combine need not be express and "may come from the prior art, as filtered through the knowledge of one skilled in the art." *Motorola, Inc. v. Interdigital Tech. Corp.*, 121 F.3d 1461, 1472, 43 USPQ2d 1481, 1489 (Fed. Cir. 1997). In the instant case, Yasumichi et al. clearly disclose and teach making the a recording media having a land and groove structure wherein it is preferred to ensure that the material in



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the groove is at the same height as the material coated on the land. The structure from the top is still "magnetic region/non-magnetic region/magnetic region/etc." and, as such, the examiner deems that the two references are analogous, especially given that Yasumichi et al. disclose that by making the heights the same, high precision positioning of the magnetic head can be obtained, thereby leading to increased areal recording density, improved S/N ratio and longer running life (Derwent Advantage).

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Kashiwagi et al. to form the non-magnetic material to the same height as the magnetic layer on the land as taught by Yasumichi et al. in order to obtain high precision positioning of the magnetic head, thereby leading to increased areal recording density, improved S/N ratio and longer running life.

Regarding claim 3, Kashiwagi et al. disclose preferentially using polymeric layers which are deemed to inherently meet applicants' claimed limitations as per Paragraph 11 above (col. 6, lines 4 - 13). Specifically, the polymeric materials used for such layers are typically polycarbonates, polyimides, etc., which are deemed to meet applicants' claimed limitation.

16. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Osami as applied above, and further in view of Yasumichi et al. ('435).

Osami disclose the claimed invention as described above.

Osami fail to disclose wherein the non-magnetic layer is within 5 nm in height of the height of the magnetic layer on the land, at the outer surface of the non-magnetic layer.

However, Yasumichi et al. teach a land and groove recording medium as described above in Paragraph 14. The invention disclosed by Yasumichi et al. is an equivalent structure to that disclosed by Osami, wherein the invention of Yasumichi et al. uses less material and provides for closer contact between the magnetic head and the magnetic layers on the land, thereby allowing for higher precision positioning of the head and, correspondingly, increased areal recording density, improved S/N ratio and longer running life.

It would therefore have been obvious to one of ordinary skill in the art at the time of the applicant's invention to modify the device of Osami to make the height of the non-magnetic layer to within 5 nm of the height of the magnetic layer on the land as taught by Yasumichi et al. in order to allow for higher precision positioning of the head and, correspondingly, increased areal recording density, improved S/N ratio and longer running life.

#### ***Examiner's Comments***

17. Claim 4 is deemed to possess allowable subject matter. While claim 4 is currently not allowable because it depends upon a base claim (see Paragraph 6 above), the prior art of record does not appear to teach the claimed subject matter. While the prior art teach a land and groove substrate using a filler comprising polymeric or

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ceramic material, the prior art fails to teach or provide motivation to use a filler comprising at least Te.

### ***Conclusion***


18. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. IDS reference Kazunari et al. (JP 63-273230-A) and Min et al. (U.S. Patent No. 5,955,168) disclose similar structures to Osami and Kashiwagi et al. which read on applicants' claimed limitations (see Figures). Both these references are similar to Kashiwagi et al. and no rejection has been made using these references since it is deemed that Kashiwagi et al. is the closer prior art and any amendment to overcome Kashiwagi et al. is deemed to probably overcome Kazunari et al. and Min et al. as well.

19. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin M Bernatz whose telephone number is (703) 308-1737. The examiner can normally be reached on M-F, 9:00 AM - 6:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul Thibodeau can be reached on (703) 308-2367. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

KMB  
August 5, 2002

  
**STEVAN A. RESAN**  
**PRIMARY EXAMINER**